

### 1 DESCRIPTION

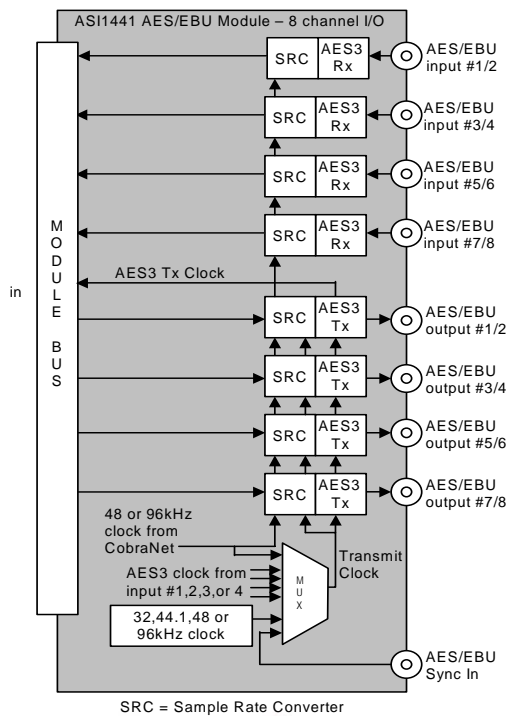
The ASI1441 is an AES/EBU I/O module intended for use in the ASI2416 Modular CobraNet™ Interface. It has eight channels of input and output, bundled as four stereo AES/EBU inputs and outputs.

Up to four ASI1441 modules may be used in one ASI2416. AudioScience's CobraNet implementation, based on the CobraNet chip used, allows for up to 16 AES/EBU inputs and outputs, out of a possible 32, to be used at any given time.

A unique feature of the ASI441 is its interchangeable connector. A choice of 50pin Centronics (ASI1491), StudioHub+™ (ASI1492), or Terminal Block (ASI1493) allows the module to accommodate a wide variety of interconnection schemes with minimal custom wiring.

### 2 FEATURES

- Eight channels of input and output, bundled as four stereo AES/EBU inputs and outputs
- 48kHz (CobraNet) operation
- Sample rate converters on inputs and outputs
- Outputs maybe clocked from any input or from local 32kHz, 44.1kHz, 48kHz or 96kHz clock
- Interchangeable Module Connectors with choice of 50pin Centronics connector, StudioHub+™ RJ-45, or Terminal Block
- Up to four modules can be used in one ASI2416



SRC = Sample Rate Converter



ASI1441



ASI1491  
50 pin Centronics



ASI1492  
StudioHub



ASI1493  
Terminal Block

### 3 SPECIFICATIONS

#### AES/EBU INPUT/OUTPUT

Type AES/EBU (EIAJ CP-340 Type I / IEC-958 Professional)  
 Sample Rates Internal: 32, 44.1, 48 and 96kHz.  
 External: 32, 44.1, 48 and 96kHz selectable from any input

#### SIGNAL QUALITY

SNR 140dB, any input to any output  
 THD+N 135dB, any input to any output

#### CONNECTOR MODULES

ASI1491 50 pin Centronics  
 ASI1492 StudioHub compatible RJ-45 jacks.  
 ASI1493 5 position 3.81mm pluggable terminal block (8 per module)

#### GENERAL

Bus AudioScience ASI2400 series module bus  
 Dimensions (Without Module Connector) 5.5" x 3.25" x 0.6" (140mm x 83mm x 15mm)  
 Weight 8 oz (227g) max  
 Operating Temperature 0C to 70C  
 Power Requirements +5V @ 500mA

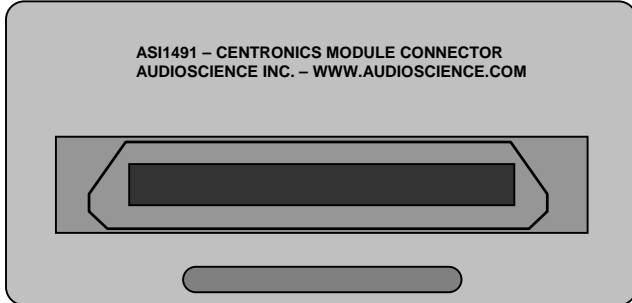


## 4 REVISIONS

Date	Description
27 June 2009	Elaborated first page, second paragraph. Fixed minor errors on block diagram, first page. Updated format, including adding a REVISIONS section.
12 Feb 2010	Updated Section 5.3: RevE ASI1493 has a different AES/EBU pinout than revA-D.
15 March 2010	Section 5.3: Correct revE AES/EBU pinout labels (out3 & 4 were swapped).
06 April 2010	Page 1: Updated block diagram (AES3 Tx Clock, AES/EBU Sync In).

## 5 MODULE CONNECTORS

### 5.1 ASI1491 50pin Centronics



The ASI1491 Module Connector provides a 50pin Centronics connector (also referred to as a 50pin SCSI connector). AudioScience's CBL1144 XLR breakout cable can be used with this connector.

The table to the right shows the pinouts when used with the ASI1441 AES/EBU Module.

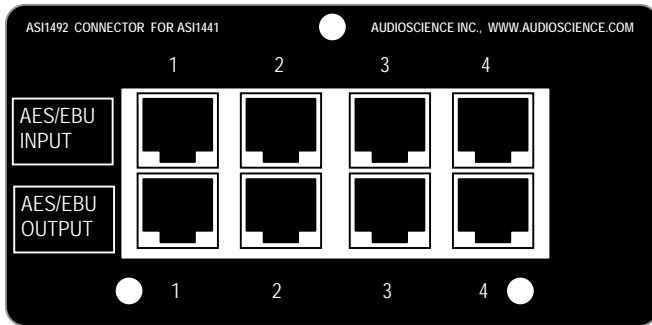
Signal	Pin #	Pin #	Signal
AES Sync In -	1	26	AES Sync In +
AES In 1 -	2	27	AES In 1 +
AES In 2 -	3	28	AES In 2 +
AES In 3 -	4	29	AES In 3 +
AES In 4 -	5	30	AES In 4 +
GND	6	31	GND
AES Out 1 -	7	32	AES Out 1 +
AES Out 2 -	8	33	AES Out 2 +
AES Out 3 -	9	34	AES Out 3 +
AES Out 4 -	10	35	AES Out 4 +
	11	36	
	12	37	
	13	38	
	14	39	
	15	40	
	16	41	
	17	42	
	18	43	
	19	44	
	20	45	
	21	46	
	22	47	
	23	48	
	24	49	
GND	25	50	GND

#### 5.1.1 CBL1144 – 8 Analog XLR In/Out Cable



CBL1144, purchased separately, can be used with the ASI1491 50pin Centronics connector and the ASI1441 AES/EBU module. It is a 50pin to 8 in/8 out XLR, balanced AES/EBU cable.

## 5.2 ASI1492 StudioHub (RJ45)



StudioHub (RJ45) Connections		
Pin	Function	Color Code
Shield	Ground	
1	AES/EBU +	Green/White
2	AES/EBU -	Green
3		
4		
5		
6		
7		
8		

The ASI1492 StudioHub Module Connector provides AES/EBU inputs and outputs on an RJ-45 type jack compatible with the Radio Systems StudioHub standard. This allows the AES/EBU signal to be transmitted using shielded twisted pair (STP) cable. Since AES/EBU audio is stereo, each AES/EBU connection supports a pair of audio channels.

The RJ45 connections are shown in the table to the right.

For more information on the StudioHub standard, see [www.studiohub.com](http://www.studiohub.com).

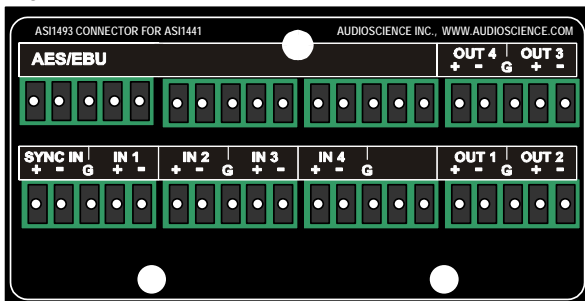
## 5.3 ASI1493 Terminal Block

The ASI1493 Terminal block Connector provides 3.81mm pluggable terminal blocks.

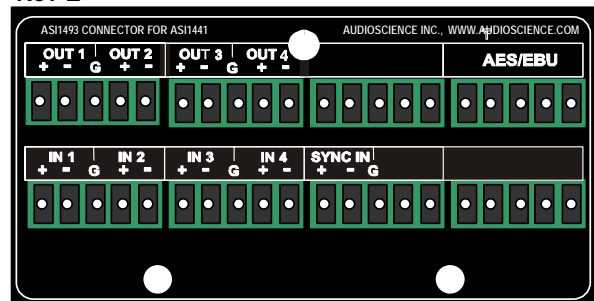
Each 'In' and each 'Out' in the images below represents a pair of audio channels.

**NOTE that the pinouts changed between revD and revE of the ASI1493.**

Rev A-D



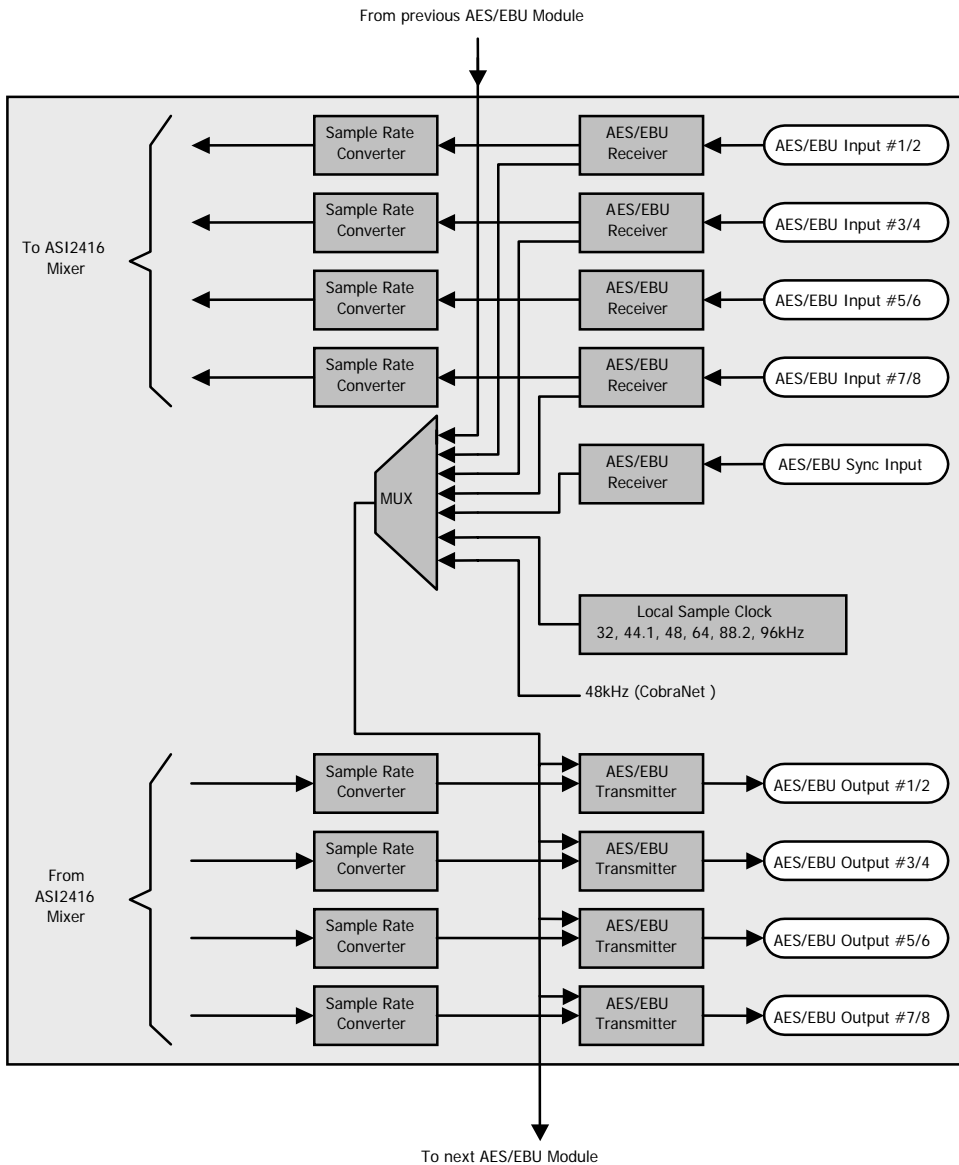
Rev E



## 6 MODULE CLOCKING AND SRC

The following diagram shows the sample rate clocking scheme for the ASI1441 module.

### ASI1441 AES/EBU Clocking



## 6.1 AES/EBU Inputs

Each AES/EBU input has a sample rate converter (SRC) on it and so may have a sample rate that is asynchronous to the rest of the system. Valid sample rates are 32, 44.1, 48, 64, 88.2 and 96kHz.

## 6.2 AES/EBU Outputs

There are the five sample rate sources for clocking the AES/EBU outputs:

1. A sample rate from the ASI1441 module in the previous slot.
2. A sample rate derived from any of the four AES/EBU inputs on that module (32, 44.1, 48, 64, 88.2 or 96kHz).
3. A sample rate derived from the AES/EBU Sync input (32, 44.1, 48, 64, 88.2 or 96kHz).
4. A local sample rate clock that may be set to 32, 44.1, 48, 64, 88.2 or 96kHz.
5. The ASI2416 CobraNet clock (48kHz).

**NOTE:** For option #1 to work correctly, multiple ASI1441 modules must be present in the ASI2416 in consecutive slots.

For Example:

**Correct:** Slot1=ASI1431, Slot2=ASI1441, Slot3=ASI1441

**Incorrect:** Slot1=ASI1441, Slot2=ASI1431, Slot3=ASI1441

<end>